

PATENT SPECIFICATION

316,825

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COMPLETE SPECIFICATION.

Valve Lifter for Internal Combustion Engines.

I, ALFRED GEORGE PETTY, a British subject, of Ringers Road, Bromley, Kent, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention, which relates to valve lifters for internal combustion engines, has for its object an improved construction and arrangement of lifter which ensures not only the valve spring being compressed in a more efficient manner clear of the usual pin or retaining collar, as the case may be, but also the automatic retention of the spring in its compressed position, thereby leaving the operator's hand free to remove said pin or retaining collar.

The invention has particular reference to the kind of valve lifter which comprises a bow member, a lifter shoe carried by one arm of the bow member for engagement under the usual washer, an operating lever or handle pivotally mounted on the other arm of said bow member, a presser member pivotally mounted on and carried by the front end of the operating lever or handle, and spring-pressed means for locking said lever or handle when in its operative position.

In the above connection, the presser member has been constituted by a vertically disposed bar slidable in a bearing in the upper arm of the bow member and in a bearing in a vertically disposed extension of said arm, the presser bar having a rack along one edge thereof.

With the rack engaged a spring-pressed pawl pivotally mounted in an arm forming part of the extension aforesaid, said arm being fitted with a handle for steadying purposes and provided with a trigger for actuating the spring-pressed pawl, and, further, the operating lever or handle of the valve lifter was pivotally connected at its end to the vertically disposed presser bar, and by a link to the upper arm of the bow member.

The present invention provides for a simplified construction and arrangement of lifter characterized in that the front

end of the operating lever is pivotally mounted in the front end of the upper arm of the bow member, and the front end of the said upper arm is provided with a rack with which engages a spring pressed pawl pivotal on the operating handle.

It forms a feature of the invention that operating handle or lever is formed with a bifurcated head or front end to receive therein, in a pivotal manner, the front end of the upper arm of the bow member, and that the presser member is formed with opposed longitudinal slots therein for the passage therethrough of the bifurcated head or end of the lever or handle, and that the presser member is adjustably and pivotally connected to said head or end, and that the distance between the pivotal points of said presser member and the pivotal points of bifurcated head and arm remain constant.

For a ready understanding of the invention, reference is to be had to the following description and accompanying sheets of drawings, wherein:—

Figure 1 is a side view, partly in section, illustrative of a valve lifter constructed in accordance with the invention, and showing the valve spring compressed.

Figure 2 is a sectional view taken on line $x-x$ of said Figure 1.

Figure 3 is a fragmentary side view illustrative of the operating lever or handle and presser member in raised position.

Figure 4 is a fragmentary side sectional view of the upper end of the lifter and illustrative of a modification thereof.

Like numerals of reference indicate corresponding parts in the several figures.

In carrying out the invention, and referring first to Figures 1, 2 and 3 of the drawings, the lifter consists of a bow member 1 of rigid construction, the lower arm 2 of said bow member 1 being fitted with a forked lifter shoe 3, whilst the front end or head 4 of the upper arm 5 of said bow member 1 is provided with a pivot pin 6 fixedly mounted therein.

On the pivot pin 6 aforesaid the bifur-

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cated head 7 of an inverted trough-like lever or handle 8 is pivotally and slidably mounted by means of inclined slots 9 in the bifurcated head 7 aforesaid, and on said lever or handle 9 there is pivotally mounted a spring-pressed pawl 10 which engages in a straight-rack 11 on the upper end of upper arm 5 of the bow member 1 aforesaid.

10 The bifurcated-head 7, 7 is provided with opposed tapped bosses 12, and on said bosses 12 there is pivotally mounted, by means of thumb-screws 13, a valve presser, the same consisting of a cylindrical member 14 provided with opposed longitudinal slots 15 therein for the passage therethrough of the bifurcated head 7, 7 of the lever or handle 8.

The presser member 14 is provided with opposed longitudinally disposed equally spaced-apart holes 16 in its walls, and through said holes 16 pass the thumb-screws 13 by which said presser member 14 is pivotally connected to the bifurcated head 7, 7.

The above arrangement permits of the presser member 14 being adjusted, as to height, by engaging the thumb-screws 13 in corresponding holes 16 after said holes have been brought in alignment with the tapped bosses 12 aforesaid.

In use, the operating lever or handle 8 is thrown over to the position shown in Figure 3 of the drawings, and the presser member 14 is adjusted to suit requirements.

The lifter is then, by its forked lifter shoe 3, engaged under the usual washer 17 which supports the spring 18 of the valve 19, and the presser member 14 is positioned on the head of the valve 19 aforesaid.

The lever or handle 8 of the lifter is then pulled over, pivoting and sliding on the pivot pin 6, towards the operator, with the result that the bow member 1 and handle or lever 8 move upwardly whilst the presser member 14 remains stationary pressing on the valve 19 thereby compressing the spring 18 of the valve and raising the washer 17 clear of the usual pin 20, at the same time, the spring-pressed pawl 10 rides on and engages in the rack 11 on the arm 5 of the bow member 1 thereby locking and holding the spring 18 of the valve in its compressed position, thus leaving the operator's hands free to remove the valve pin 20 aforesaid.

After replacing the pin 20, it is only necessary to disengage the pawl 10 from the rack 11 and swing upwardly the lever or handle 8 whereupon the lifter, under the action of the valve spring 18, moves down, and the pressure of the presser member 14 on the valve 19 is removed,

whereupon the lifter can be readily removed.

Referring now to Figure 4 of the drawings, the inclined slots 9 of the bifurcated head 7 of the lever or handle 8 are dispensed with, and said lever or handle 8 is simply pivoted on the pin 6 in the head or front end of the arm 5 of the bow member, and said head or front end of said-arm 5 is now formed with a quadrant like rack 11 radiused from said pivot pin 6 instead of a straight rack, all the other parts of the lifter being as in the previously described arrangement of valve lifter.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A valve lifter for internal combustion engines of the kind set forth, characterized in that the operating handle or lever is by its front end pivotally mounted on the front end or head of the upper arm of the bow member, and the front end or head of said arm is provided with a rack with which engages a spring-pressed pawl pivotal on the operating handle or lever.

2. A valve lifter as in claim 1, wherein the upper arm of the bow member is provided at its front end with a quadrant-like rack radiused from the pivotal point between the head of the handle and said arm, and the handle is provided with a spring-pressed pawl which is adapted to engage the rack aforesaid.

3. A valve lifter as in Claims 1 and 2, wherein the operating lever or handle is formed with a bifurcated head or front end to receive therein, in a pivotal manner, the front end of the upper arm of the bow member.

4. A valve lifter as in Claims 1, 2 and 3, wherein the presser member has opposed longitudinal slots therein for the passage therethrough of the bifurcated end or head of the lever or handle, and is pivotally connected to said end or head.

5. A valve lifter as in Claim 4, wherein the presser member is adjustably and pivotally connected to the bifurcated head of the lever or handle, the distance between the pivotal points of the presser member and the pivotal points of bifurcated head and arm of bow member remaining constant.

6. A valve lifter as in Claim 4, wherein the presser member is constituted by a cylindrical member and is pivotally and detachably connected to the head of the lever or handle by opposed thumb-screws engaging in threaded bosses on the outer faces of the head of the lever or handle

aforesaid.

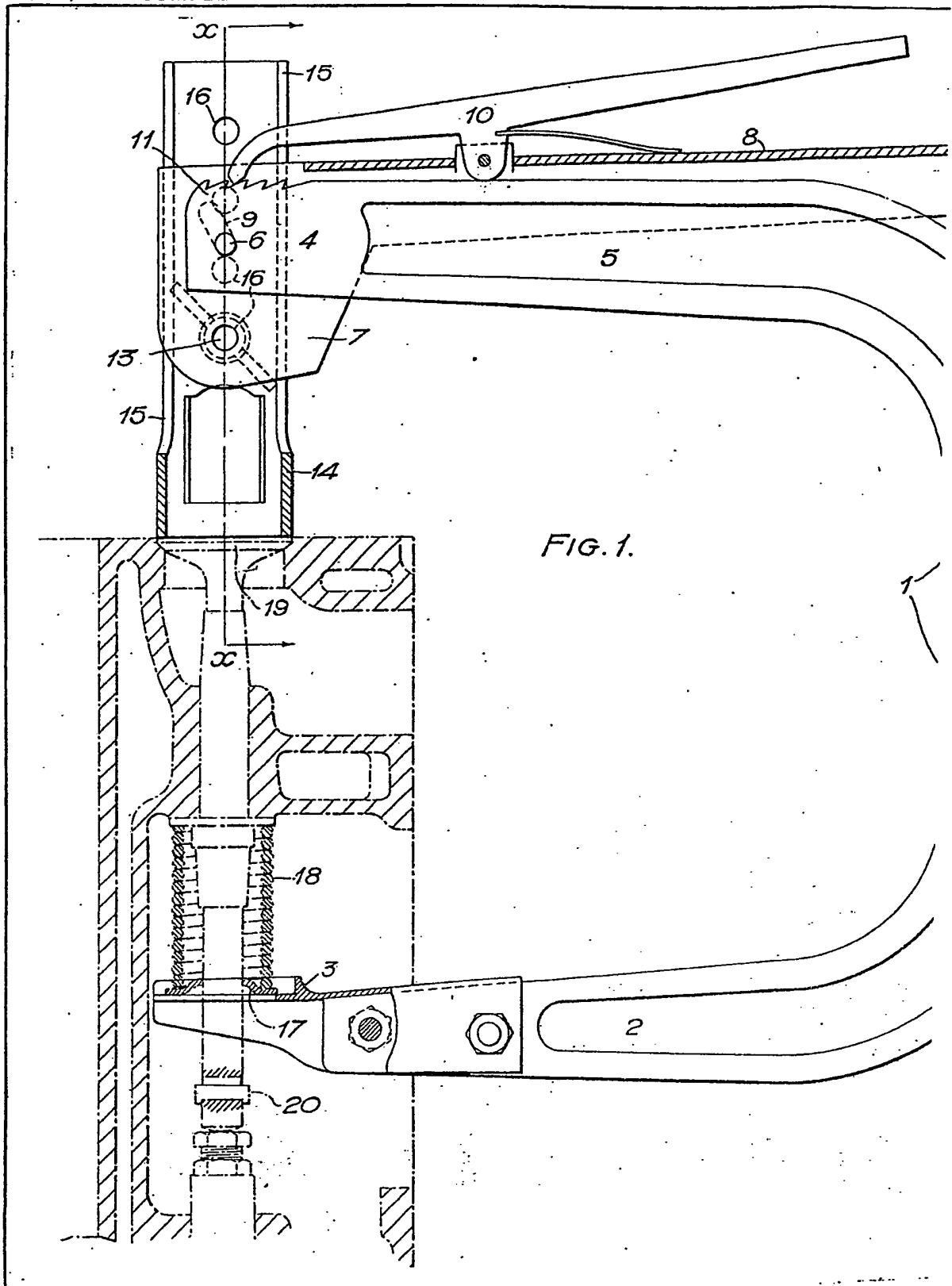
7. A valve lifter as in Claim 6, wherein the presser member is provided in its walls with opposed longitudinally disposed equally spaced-apart holes for the pivotal connection, by the thumb-screws aforesaid, to the bifurcated head of the handle or lever. 20
8. A valve lifter as in Claims 3 to 7, wherein the bifurcated head of the operating lever or handle is provided with inclined slots therein by which it is not only pivotal but also slidable on the pivot pins of the upper arm of the bow member. 25
9. A valve lifter as in Claim 3, wherein the operating lever or handle is constituted by an inverted trough like arm formed in one with the bifurcated head aforesaid.
10. A modification of the valve lifter as in Claim 2, wherein the spring-pressed pawl engages in a straight rack on the upper edge of the upper arm of the bow member.
11. A valve lifter for internal combustion engines substantially as described herein and with reference to the accompanying sheets of drawings.

Dated this 6th day of November, 1928.
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Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1929.

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[This Drawing is a reproduction of the Original on a reduced scale.]



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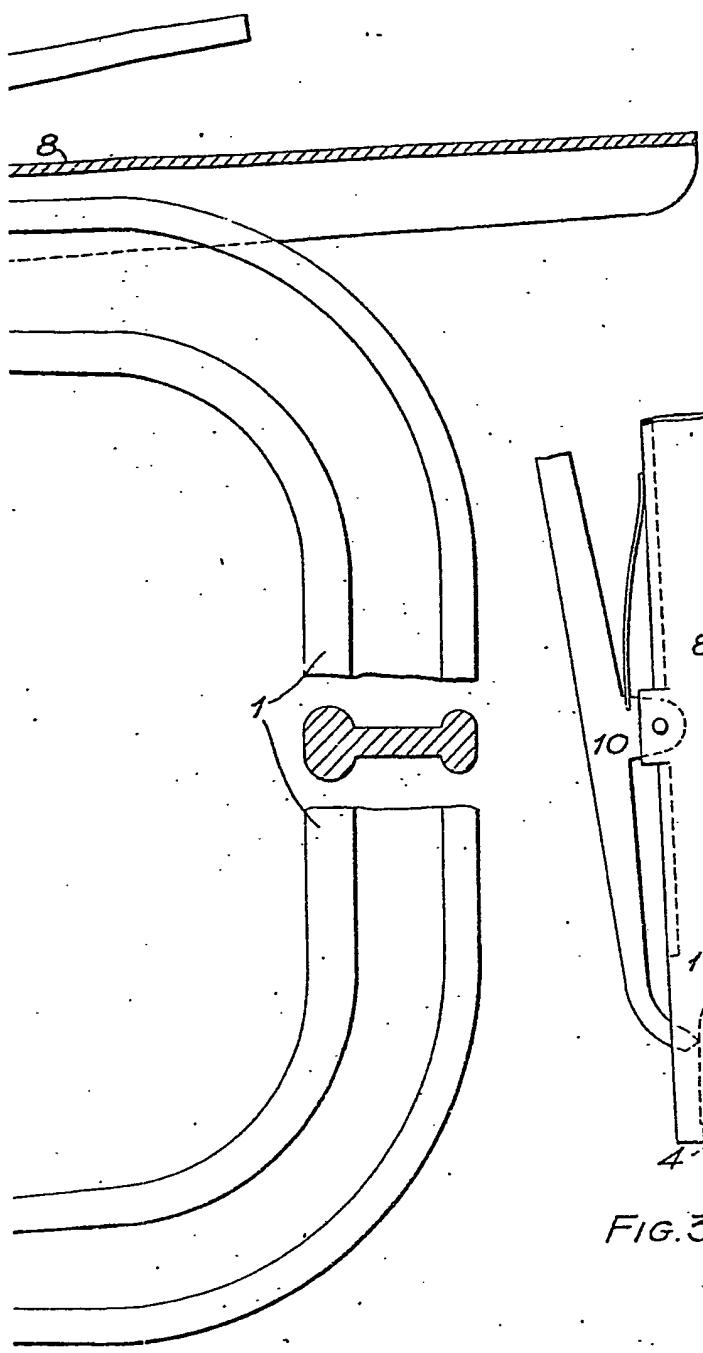


FIG. 2.

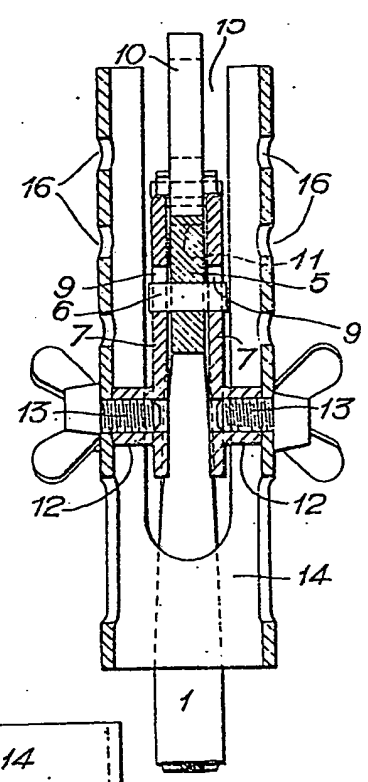
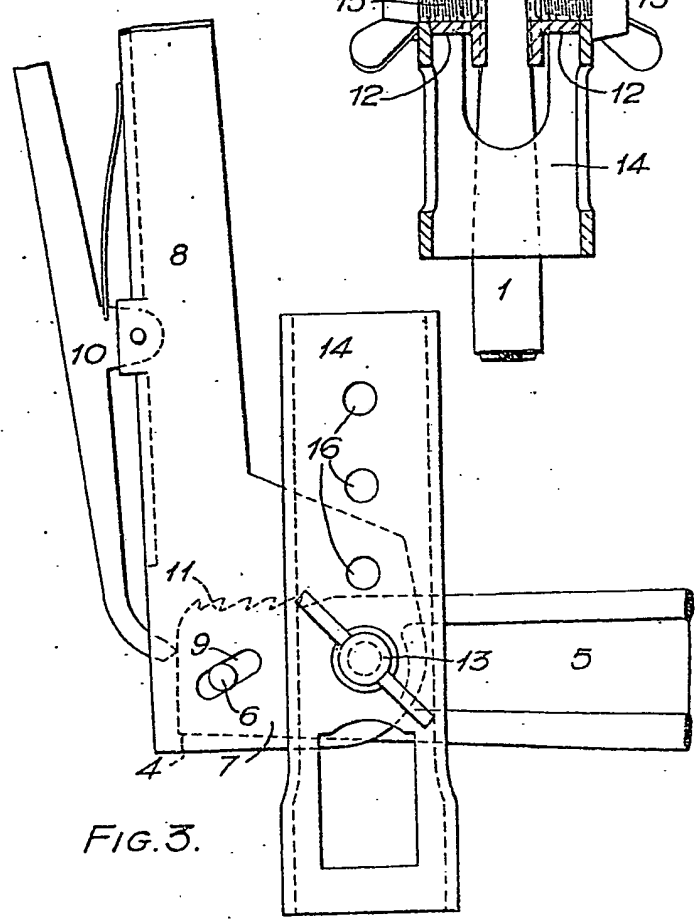
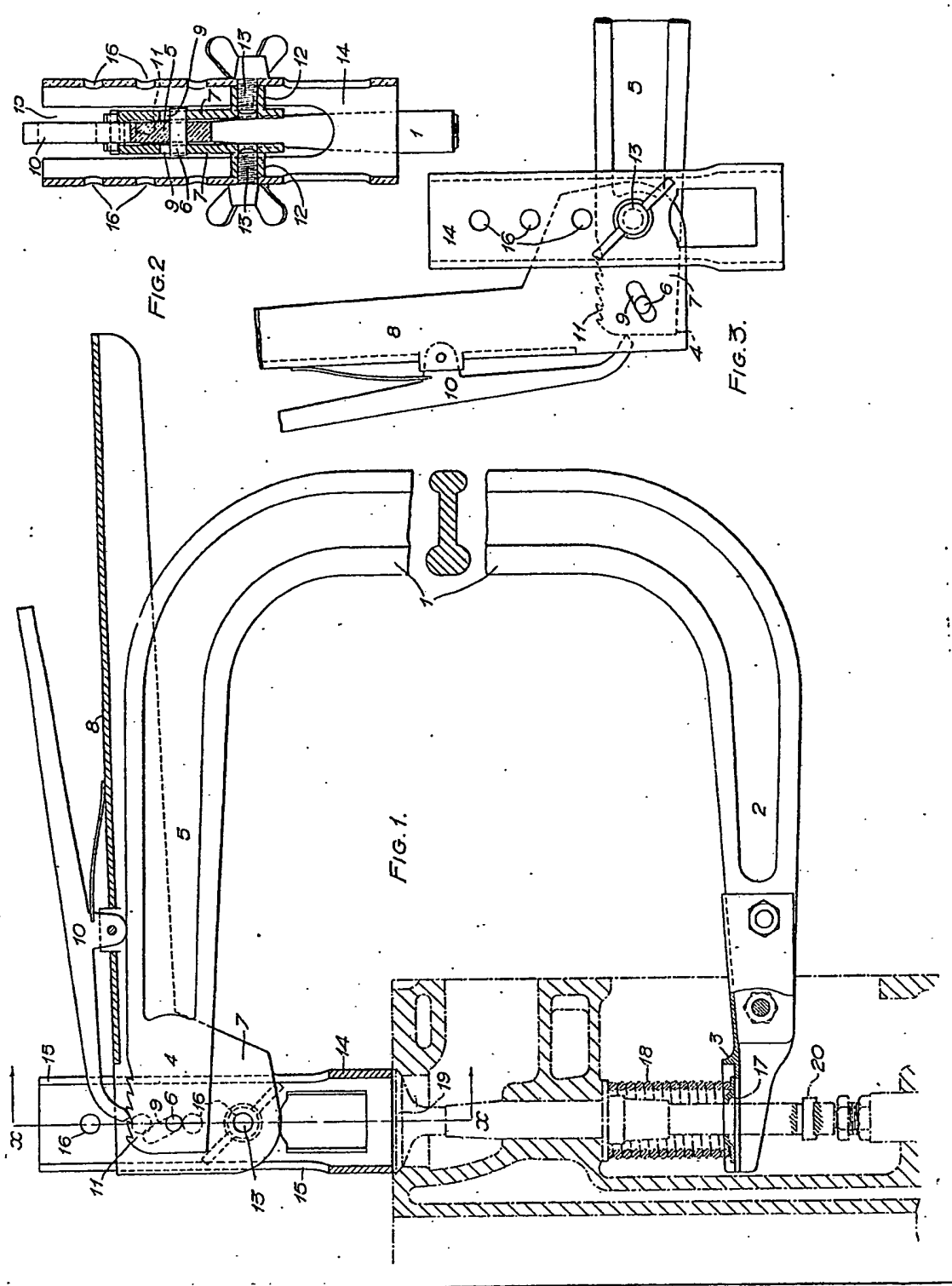


FIG. 3.





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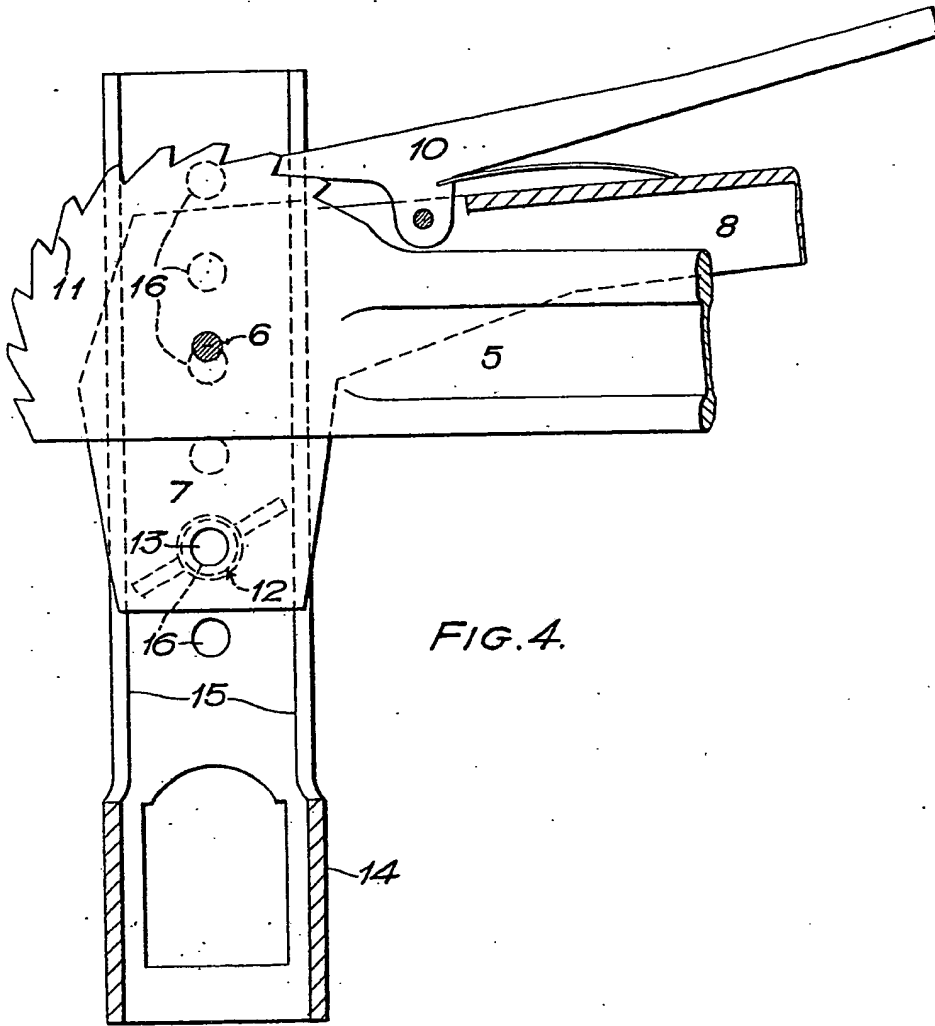


FIG. 4.

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